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Published:

- with international search report
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **INK COMPRISING CASEIN**

(57) Abstract: A process for printing a porous substrate comprising ink jet printing a colorant and casein onto the substrate to give a print in which the colorant and casein are in contact with each other.



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INTERNATIONAL SEARCH REPORT

Application No
PCT/02/03/03837

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C09D11/00 C09D11/02 C09D11/04 C09D11/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C09D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No. *
X	WO 99 51695 A (SIEMENSMEYER KARL ; BASF AG (DE); BOHN HERIBERT (DE); HORN DIETER ()) 14 October 1999 (1999-10-14) page 4, line 30 - line 40; claim 8; examples 3-5	1-13
X	US 2002/067399 A1 (NORO MASAKI ET AL) 6 June 2002 (2002-06-06) paragraph [0270] - paragraph [0271]; claim 7 paragraph [0300]	1-13
P, X	EP 1 251 154 A (FUJI PHOTO FILM CO LTD) 23 October 2002 (2002-10-23) paragraph [0120]; claim 1 paragraph [0137]	1-13
	-/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"G" document member of the same patent family

Date of the actual completion of the international search

11 November 2003

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INTERNATIONAL SEARCH REPORT

Application No
PCT/JP 03/03837

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 10, 10 October 2002 (2002-10-10) -& JP 2002 179971 A (TOYO INK MFG CO LTD; TOYO FOOD COLOR & CHEMICAL CO LTD), 26 June 2002 (2002-06-26) abstract ---	1-13
X	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 05, 31 May 1999 (1999-05-31) -& JP 11 035860 A (DAINIPPON INK & CHEM. INC); 9 February 1999 (1999-02-09) abstract ---	1-13
X	PATENT ABSTRACTS OF JAPAN vol. 008, no. 145 (C-232), 6 July 1984 (1984-07-06) -& JP 59 053565 A (DAINIPPON TORYO KK; OTHERS: 01), 28 March 1984 (1984-03-28) abstract ---	1-13
X	PATENT ABSTRACTS OF JAPAN vol. 012, no. 028 (C-471), 27 January 1988 (1988-01-27) -& JP 62 177076 A (TOYO INK MFG CO LTD), 3 August 1987 (1987-08-03) abstract -----	1-13

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/GB 03/03837

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-13

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/GB 03/03837

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-13

An Ink comprising casein, a colorant and a liquid medium. In a second claim an ink is disclosed comprising casein, colorant, 1,2-benzisothiazolin-3-one and a liquid medium. In both inks the content of di- or trivalent metal ions is less than 0.1% by weight of the ink. Further a process for printing a porous substrate comprising ink jet printing a colorant and casein onto the substrate.

2. Claim : 14

The use of casein to improve ozone fastness.

INTERNATIONAL SEARCH REPORT

Information on patent family members

national Application No

PCT 03/03837

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